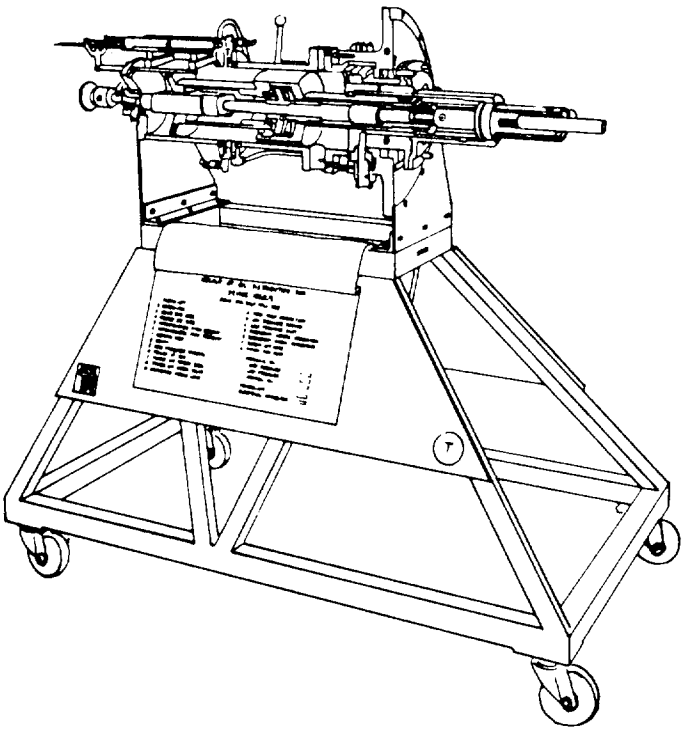
DIRECTORY OF NAVAL TRAINING DEVICES



SHIPS PROPELLER CONTROLLABLE PITCH OIL DISTR T/A, DEVICE 19E12/2

TRAINING CATEGORY:

PROPULSION ENGINEERING (Maintenance Equipment)

ORIGINATING AGENCY:

CNET

SECURITY CLASSIFICATION:

Device 19E12/2 is unclassified.

INTENDED USE:

To provide military personnel a basic understanding of the operation of the Oil Distribution Box for the controllable pitch propeller used on the DD963 Class Destroyer.

FUNCTIONAL DESCRIPTION:

Device 19E12/2 is a one-half scale, three-dimensional, hand-operable mockup of the controllable pitch ship propeller oil distribution box as used on the DD963. The device is sectionalized and reveals valves, valve rod assembly, and PRAIRIE air assembly. The piston control is provided to demonstrate the principles of operation. The device illustrates all the mechanical components, hydraulic components, and hydraulic pressure necessary to demonstrate the train of action. The electrohydraulic servo valve and manual control valve are revealed. Valves and ports that control movement of the piston rod are revealed. Electrical and hydraulic inlets and outlets are shown and the PRAIRIE air tube is revealed.

A support stand constructed of aluminum tubing and cross bracing supports the mockup. The stand has four (4) swivel rubber-tired casters. Two (2) of the casters have side locking brakes.

A dust cover of vinyl plastic is provided to protect the mockup when it's not in use.

Components of the mockup are identified by numbers on the component. A nomenclature plate with component titles and identifying numerals and color code for air, electrical connector, and oil is provided on the support stand.

Parts are color coded as follows:

Red	PRAIRIE Air
Violet	Electrical Connector
Dark Green	High Pressure Oil
Olive Drab	Low Pressure Oil

The device may be used to demonstrate the principles of operation of the mechanism of the oil distribution box, to teach maintenance, adjustments and replacement of components. The instructor may repeat all or any part of the demonstration or may permit trainees to participate in the demonstration.

OPERATION:

CAUTION:

Do not use excessive force in operating this device. Damage to components may result.

To Operate:

Move piston control forward or aft which moves valve rod assembly (3) to which piston forward (2) and piston aft (1) are attached. Movement of valve rod assembly is indicated on potentiometer-pitch readout (5) scale by movement of follow up rod (10).

To operate manual control valve handle of manual control valve (15), set four way valve controls (16) to manual position. Move manual control valve (15) to open, and close ports controlling oil flow to forward and aft pistons.

PHYSICAL INFORMATION:

Size: Assembled Device 53" x 31" x 51"
Weight: 90 lbs.

ENVIRONMENTAL CHARACTERISTICS:

Ambient temperatures ranging from -5° to + 165 ° F.

Relative humidity ranging up to 95%.

PUBLICATIONS FURNISHED:

Summary, NAVTRADEV P-3593 (U)

PERSONNEL:

Instructor: One (1) qualified to instruct in DD963 propulsion system power train.

Trainees: Class of up to Twenty (20)

Maintenance: No maintenance other than routine cleaning is required.

CONTRACT IDENTIFICATION:

Manufactured by Bird-Johnson Co., Walpole, MA under NAVTRASYSCEN Contract No. N61339-73-C-0199.

LOCAL STOCK NUMBER:

6910-LL-C00-3208